If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

14.3.2 EMS Training for Beam Line Construction and Disassembly

Text Pages 2 through 5

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman

Date

R. Karol

14.3.2 EMS Training for Beam Line Construction and Disassembly

Environmental Training Package for Beam Line Construction and Disassembly

This package has been designed to aid in the delivery of required job-specific training for the following beam line construction and disassembly activities identified in the environmental process evaluation

- Installation and welding of beam line piping or removal
- Placement of magnets
- Connection or disconnection of magnet cooling system hoses and piping
- Installation and wiring of electrical equipment or removal
- Installation of vacuum pumps or removal
- Placement of concrete and metal shielding
- Hazardous, industrial and radioactive waste generation
- Atmospheric discharges
- Radioactive materials storage (shielding “bone yard”)

Your position has been determined to have significant potential to impact the environment. Thus, C-A Department Management has prepared the questions & answers on the following pages for your specific work/processes.

This environmental material is incorporated into your current job and procedure training. If you have specific questions about this information after you have read the material, contact the C-A Department ESH&Q Division Head, Ray Karol (mailto:rck@bnl.gov).

You may keep this material as a handout and use it as a reference aid.

This specific training course is linked to your job-training assessment (JTA). You must read and acknowledge this material as part of the qualification to perform beam line construction and disassembly operations. Please fill out the Read and Acknowledgement form and return it promptly.

Read & Acknowledgement Form

Environmental Process Evaluation Title: Beam Line Construction and Disassembly

Environmental Aspects: Hazardous Waste, Regulated Industrial Waste, Radioactive Waste, Atmospheric Discharges, Storage/Use of Radioactive Materials

Contacts for Further ESHQ Information:
Associate Chair for ESHQ, E. Lessard
Head of ESHQ Division, R. Karol
Environmental Coordinator, J. Scott
Environmental Compliance Representative, M. VanEssendelft
ESH Coordinator, A. Etkin
Industrial Hygienist, Peter Cirnigliaro
Radiological Control Division Representative, P. Bergh
Procedures Coordinator, L. DiFilippo
Quality and Assessment Manager, D. Passarello
Self Evaluation Program, J. Maraviglia
SHS Representative, Ed Lacina
Source Custodian, P. Cirnigliaro
Tier 1 Coordinator, A. Etkin
Training Manager, J. Maraviglia
Training Records, A. Luhrs
Work Control Manager, P. Cirnigliaro

Course Objective: Because your work activities have been identified as having significant potential to impact the environment, this course has been designed to provide you with the job-specific information that you must know to protect the environment.

1) What potential impacts to the environment are associated with your activities?

- The beam lines are composed of shield, electric, magnet, cooling, target and vacuum systems that are constructed and disassembled based on the requirements for a particular experiment. Listed below are the major items that have potential to impact the environmental during beam line construction and disassembly activities:
  - Scrap metal pipe from beam lines, welding slag, worn metal magnet parts, worn metal cooling system parts, worn metal vacuum pump parts, and various scrap wire, targets and metals may be radioactive or hazardous
  - Smoke eater filters, worn non-metal magnet parts, worn non-metal cooling system parts, worn non-metal vacuum system parts, and various trash may be radioactive
  - Capacitors may be radioactive and/or contain PCBs
  - Power supply air filters may be radioactive
  - Power supply components (printed circuit boards) may be hazardous
  - Vacuum pump oil may be radioactive
  - Oily rags may be radioactive
  - Personal protective equipment and rags from radioactive materials work areas may be radioactive

2) What consequences may result if your operations were to impact the environment?

- Hazardous, industrial or radioactive waste mismanagement could contaminate the environment and incur RCRA or local agency penalties. Improper release of radioactive materials to uncontrolled areas may result in enforcement actions under Federal Rule 10CFR835
- Improper handling of waste can create loss of regulator and public trust

3) What benefits or positive effects would you notice with improved environmental performance?

- Safer, cleaner workplace
- Clear roles and responsibilities
- Improved relationship with regulators and the public
- Control of disposal costs
- Control of activated materials

4) What role and responsibility do you have for these potential impacts and environmental performance?

My responsibilities are

- To ensure hazardous, radioactive and industrial wastes are handled according to C-A procedures
- To take action when waste handling controls fail
- To contact supervision if unsure of how to perform the work or if the procedures are unclear or incorrect

5) What controls or procedures are implemented to reduce the potential for emergency?

- C-A OPM 8.20, Handling and Disposing of Hazardous Waste
- C-A OPM 8.20.2, Radioactive Waste Disposal
- C-A OPM 8.22, Handling and Disposal of Non-Hazardous and Recyclable Solid Waste
- C-A OPM 8.20.1, C-A Hazardous Waste Trailer (HWT) (90 Day Accumulation Area)
- Secondary containment where applicable.
- Radiation Work Permits
- Enhanced Work Permits
- Satellite Accumulation Areas
- Monitoring and Labeling of Activated Materials
- Tier I program and self-evaluations

6) How would you respond in an emergency to reduce the potential for environmental impact and what actions could be taken to mitigate the event?

- See C-A OPM 3.0, Local Emergency Plan for the C-A Department
- Call Spill Response Hotline – X2222 or 911 (If calling from a cell phone, dial (631) 344-2222)

7) What pollution prevention and waste minimization techniques have been or could be considered to reduce or eliminate the potential to impact the environment?

- If we sorted all waste into radioactive and non-radioactive when working in beam line areas to reduce the volume of radioactive waste

- If we reduce the activation of components by better tuning and use of collimators similar to the upgrade of C line

Suggestions or comments about pollution prevention or waste minimization are always welcome by C-A management.

8) Are there any key Environmental-specific Competency Requirements for this position?

- None

Additional Environmental Information:

Click on the items below to learn more about Beam Line Construction & Disassembly Operations.

- Process Assessment for Beam Line Construction & Disassembly Operations
- Environmental Management Program
- Operational Control Form for Beam Line Construction & Disassembly Operations